MARYLAND HEALTH CARE COMMISSION

HEALTH RESOURCES

STATISTICAL BRIEF

ACUTE INPATIENT REHABILITATION SERVICES

This statistical brief is one of a series designed to provide data annually for monitoring the availability and utilization of certain health care resources in compliance with the Commission's State Health Plan for Facilities and Services. Under COMAR 10.24.09, existing providers of acute inpatient rehabilitation services in Maryland are to collect and report certain data, demonstrate the efficient use of bed capacity, and comply with the requirements of accreditation. This brief includes the most recent annual data available from the specified sources.

Acute inpatient rehabilitation refers to interdisciplinary, coordinated care provided to persons with disabilities who require close medical supervision by a physician with specialized training or experience in rehabilitation, daily care by registered nurses with specialized training or experience in rehabilitation, and an intensive level of rehabilitation services by skilled therapists or allied health professionals. Patients who require acute inpatient rehabilitation services need, on a priority basis, intense physical or occupational therapy, or a combination of these and other skilled rehabilitative care, such as speech-language pathology services or prosthetic-orthotic services.

The Maryland Certificate of Need (CON) Program regulates non-federal hospitals in Maryland. A CON is required for the establishment of an inpatient facility that is organized for the primary purpose of assisting in the rehabilitation of persons with disabilities through an integrated program of medical and other services provided under competent professional supervision.

Under §19-318 of the Health-General Article, a hospital in Maryland must also obtain a license classifying it as a special rehabilitation hospital before the hospital may provide or hold itself out as providing comprehensive physical rehabilitation services. Further, Maryland law requires a special rehabilitation hospital to obtain accreditation by the Commission on Accreditation of Rehabilitation Facilities (CARF). Any specialized program provided by the hospital must meet specific program standards established by CARF. Specialized programs include coordinated and integrated services for persons with spinal cord dysfunction or acquired brain injuries, and programs that serve children and adolescents who have significant functional limitations as a result of acquired or congenital impairments. Assistance in making decisions about selecting a rehabilitation facility is available at http://www.carf.org.

The State Health Plan for Facilities and Services designates five regional service areas for the planning of acute inpatient rehabilitation services: Western Maryland (Carroll, Frederick, Washington, Allegany, and Garrett Counties); Montgomery County; Southern Maryland (Prince George's, Charles, Calvert, and St. Mary's Counties); Central Maryland (Baltimore City and Harford, Baltimore, Anne Arundel, and Howard Counties); and Eastern Shore (Cecil, Kent, Queen Anne's, Talbot, Caroline, Dorchester, Worcester, Wicomico, and Somerset Counties). Specialized programs are considered statewide resources.

Licensed Special Rehabilitation Hospitals with Inpatient Programs Accredited by CARF: Maryland, October 2004

Hospital (Region)	Status of Accreditation by CARF	
	Program	**Date of Expiration**
Adult		
Memorial Hospital and Medical Center of Cumberland (WM)	CIIRP – adult	January 2006
Washington County Hospital (WM)	CIIRP	November 2006
Adventist Rehabilitation Hospital of Maryland (MC)	CIIRP	October 2005
Laurel Regional Hospital (SM)	CIIRP – adult	December 2004
Good Samaritan Hospital (CM)	CIIRP	April 2007
Johns Hopkins Bayview Medical Center (CM)	CIIRP – adult	November 2004
Johns Hopkins Hospital (CM)	CIIRP – adult	April 2006
Kernan Hospital (CM)	CIIRP – adult; SCSC – adult; BI CIIRP adult	April 2005
Levindale Hebrew Geriatric Center and Hospital (CM)	CIIRP	March 2005
Maryland General Hospital (CM)	CIIRP – adult; BI	December 2005
Sinai Hospital (CM)	CIIRP; BI	April 2007
Union Memorial Hospital (CM)	CIIRP	March 2007
HealthSouth Chesapeake Rehabilitation Hospital (ES)	CIIRP – adult	November 2005
Pediatric		
Kennedy Krieger Institute (CM)	PFC CIIRP; PFC BI CIIRP	February 2005
Mt. Washington Pediatric Hospital (CM)	CIIRP PFC	November 2005

WM=Western Maryland, MC=Montgomery County, SM=Southern Maryland, CM=Central Maryland, ES=Eastern Shore

Source: Accreditation information provided by the Maryland Office of Health Care Quality (OHCQ). Maryland law requires licensed facilities to authorize CARF to release to the Secretary of Health and Mental Hygiene any information obtained by CARF during the accreditation process and any inspection.

Note: The above codes identify the following types of program: CIIRP = Comprehensive Integrated Inpatient Rehabilitation Program; SCSC = Spinal Cord System of Care; BI = Brain Injury Program; and PFC = Pediatric Family-Centered Rehabilitation Program.

If a Comprehensive Integrated Inpatient Rehabilitation Program serves *any* persons with spinal cord dysfunction, or *any* children/adolescents without seeking accreditation as a Pediatric Family-Centered Comprehensive Integrated Inpatient Rehabilitation Program, CARF requires the program to meet specific additional standards. A Spinal Cord System of Care includes both an inpatient component in a licensed hospital, and an outpatient component in a nonresidential setting.

Rehabilitation Beds, Discharges, Patient Days, Average Length of Stay, and Percent Occupancy: Maryland, 2003

Hospital	Beds	Dis-charges	Patient Days	ALOS	Occu-pancy
Adult					
Cumberland Memorial	21	336	3,428	10.2	44.7%
Washington County	28	432	4,010	9.3	39.2%
Adventist	55/77	1,244	15,266	12.3	64.0%
Laurel Regional	23/28	633	5,911	9.3	64.5%
Good Samaritan	51	1,368	12,365	9.0	66.4%
Bayview	4	158	1,127	7.1	77.2%
Johns Hopkins	14	476	4,414	9.3	86.4%
Kernan	82	1,448	17,593	12.1	58.8%
Levindale	20	220	4,175	19.0	57.2%
Maryland General	33	564	6,217	11.0	51.6%
Sinai	57	1,281	13,179	10.3	63.3%
Union Memorial	18	584	5,399	9.2	82.2%
Chesapeake	49	957	15,751	16.5	88.1%
Pediatric					
Kennedy Krieger	31	150	5,488	36.6	48.5%
Mt. Washington	46	98	3,144	32.1	18.7%

Data Sources: Maryland Discharge Abstracts, CY 2003 (file created 9/20/2004); OHCQ-approved Licensed Bed Designations.
Notes: Except for Kennedy Krieger, data include discharge abstracts in which the Nature of Admission was coded as Rehabilitation. This category is defined as patients who were admitted for rehabilitative care in a distinct rehabilitation unit. Regulations require that an on-site transfer from an acute care unit to a distinct rehabilitation unit shall be represented by two separate abstracts, one for each portion of the hospital stay. Data for Kennedy Krieger comprise a subset of data from the Uniform Data System for Medical Rehabilitation. Data for Adventist (formerly Kessler-Adventist) Rehabilitation Hospital include its satellite facility at Washington Adventist Hospital, a 22-bed unit that opened on July 14, 2003. Laurel Regional increased its bed capacity by 5 beds, effective August 1, 2003. Classified as both a special hospital (chronic) and a special rehabilitation hospital, Kernan has 24 licensed chronic beds, 16 dually-licensed chronic/rehabilitation beds, and 82 licensed rehabilitation beds. Based on the chronic hospital case-mix data reported by Kernan, none of the dually-licensed beds were utilized for acute inpatient rehabilitation in 2003.

In calendar year 2003, there were 9,701 discharges from adult programs, and 248 discharges from pediatric programs. In general, freestanding rehabilitation hospitals, and units in pediatric hospitals, facilities also licensed as chronic hospitals, and hospitals with specialized programs for persons with spinal cord dysfunction or acquired brain injuries had longer average lengths of stay.

Specialized Rehabilitation Beds, Admissions, Patient Days, and Percent Occupancy: Maryland, 2003

Hospital	Beds	Admissions	Patient Days	Occupancy
Adult				
Kernan				
Spinal Cord	17	533	5,992	96.6%
Brain	27	247	4,020	40.8%
Maryland General				
Brain	15	135	1,850	33.8%
Sinai				
Brain	10	181	2,868	78.6%
Pediatric				
Kennedy Krieger*				
Pediatric – Comp	16	74	2,648	45.3%
Pediatric – Brain	15	76	2,836	51.8%
Mt. Washington				
Pediatric – Comp	46	109	4,058	24.2%

*Discharges reported
Data Sources: MHCC Quarterly Rehabilitation Survey; OHCQ-approved Licensed Bed Designations.
Note: The Maryland Health Resources Planning Commission, a predecessor agency of the Maryland Health Care Commission, granted CON approval or exemption for specialized rehabilitation bed capacity at the above facilities.

Rehabilitation Discharges by Age Group: Maryland, 2003

Hospital	Age Group			
	0-17	18-64	65+	Total
Adult				
Cumberland Memorial	0	41	295	336
Washington County	2	117	313	432
Adventist	1	330	913	1,244
Laurel Regional	0	171	462	633
Good Samaritan*	1	456	911	1,368
Bayview	0	43	115	158
Johns Hopkins	0	209	267	476
Kernan	23	736	689	1,448
Levindale	0	52	168	220
Maryland General	0	300	264	564
Sinai	0	406	875	1,281
Union Memorial	0	105	479	584
Chesapeake	1	155	801	957
Pediatric				
Kennedy Krieger	143	7	0	150
Mt. Washington	96	2	0	98

*Good Samaritan attributed the discharge in the 0-17 age group to a coding error.

Sixty-eight percent of the discharges from programs for adult patients were aged 65 years or older; of that group, 60 percent were 75 years or older. The subgroup aged 45-64 comprised 74 percent of the age group of 18-64 years. Under COMAR 10.24.09, pediatric refers to patients less than 18 years of age; all pediatric discharges from the adult programs were 15 years or older.

The discharges from the two pediatric programs included nine discharges between 18 and 21 years of age.

Rehabilitation Discharges by Source of Admission: Maryland, 2003

Hospital	Source of Admission				
	Acute Care	Home	Nursing Home	Other	Total
Adult					
Cumberland Memorial*	161	171	0	4	336
Washington County	424	7	0	1	432
Adventist	1,194	11	0	39	1,244
Laurel Regional	567	63	1	2	633
Good Samaritan	1,295	35	3	35	1,368
Bayview	78	78	0	2	158
Johns Hopkins	459	16	0	1	476
Kernan**	962	358	1	127	1,448
Levindale	199	3	8	10	220
Maryland General	524	2	1	37	564
Sinai	1,245	31	4	1	1,281
Union Memorial	511	65	0	8	584
Chesapeake	909	40	6	2	957
Pediatric					
Kennedy Krieger	140	10	0	0	150
Mt. Washington	97	1	0	0	98

*Cumberland Memorial reported that other data show three admissions from home and the remaining from acute care.
**Kernan reported that other data show approximately 95 percent of its discharges were admitted from acute care.
Notes: Source of admission is defined as the location of the patient immediately before admission. Other includes sub-acute care, ambulatory/outpatient setting, any other health institution, and unknown.

At least 88 percent of discharges were admitted to adult programs from acute care (transferred from an on-site unit or admitted from another acute general hospital). Data from the Uniform Data System for Medical Rehabilitation (UDSMR) indicate the presence of coding errors resulting in the

substantial underreporting of admissions from acute care for Cumberland Memorial and Kernan. Acute care hospitals were the source of admission for 96 percent of discharges from pediatric programs.

Discharges by Rehabilitation Admission Class: Maryland, 2003

Hospital	Admission Class				
	Initial Rehabilitation	Evaluation	Readmission	Other	Total
Adult					
Cumberland Memorial	300	3	2	31	336
Washington County	406	0	12	14	432
Adventist	942	2	73	227	1,244
Laurel Regional	608	0	6	19	633
Good Samaritan	1,275	0	62	31	1,368
Bayview	80	1	70	7	158
Johns Hopkins	462	0	4	10	476
Kernan	1,269	1	154	24	1,448
Levindale	194	0	10	16	220
Maryland General	511	2	49	2	564
Sinai	1,236	2	11	32	1,281
Union Memorial	555	2	16	11	584
Chesapeake	661	0	203	93	957
Pediatric					
Kennedy Krieger	146	0	4	0	150
Mt. Washington	91	0	1	6	98

For Laurel Regional, the data source is a file created 6/14/2004, which contains fewer cases with invalid codes.

Notes: Initial rehabilitation – the patient's first admission to any inpatient rehabilitation facility for this impairment. Evaluation – a pre-planned stay of fewer than 10 days on the rehabilitation service for evaluation; does not include a rehabilitation stay that is completed in fewer than 10 days. Readmission – a stay in which the patient was previously admitted to an inpatient rehabilitation facility for this impairment, but is NOT admitted to the current rehabilitation program DIRECTLY from another rehabilitation program.

Other includes unplanned discharge, which is a stay that lasts less than 3 calendar days because of an unplanned discharge (e.g., due to a medical complication); continuing rehabilitation, which is part of a rehabilitation stay that began in another rehabilitation program (an admission directly from another inpatient rehabilitation facility); and invalid codes.

This item (Rehabilitation Admission Class) has been taken from the Guide for the Uniform Data Set for Medical Rehabilitation (including the FIM instrument), Version 5.1, owned by the Uniform Data System for Medical Rehabilitation, a division of UB Foundation Activities, Inc. Used with permission.

Kennedy Krieger Institute and Mt. Washington Pediatric Hospital use the impairment group codes in the UDSMR WeeFIM System. Discharges coded as surgical intervention, assistive/adaptive technology intervention, or pharmacological intervention are included in initial rehabilitation.

Eighty-eight percent of discharges from adult programs were classified as initial rehabilitation; 96 percent of discharges from pediatric programs were patients within this category.

Medicare was the primary payer for 71 percent of discharges from adult programs, reflecting the high percentage of patients aged 65 and older. Medicaid was the primary payer for 50 percent of discharges from pediatric programs.

Rehabilitation Discharges by Primary Payer: Maryland, 2003

Hospital	Primary Payer					
	Blue Cross	Commercial	Medicaid	Medicare	Other	Total
Adult						
Cumberland Memorial	7	12	2	301	14	336
Washington County	29	59	9	308	27	432
Adventist	0	250	38	852	104	1,244
Laurel Regional	19	31	32	484	67	633
Good Samaritan	87	111	73	993	104	1,368
Bayview	12	22	3	90	31	158
Johns Hopkins	58	53	37	285	43	476
Kernan	174	149	147	731	247	1,448
Levindale	3	0	16	195	6	220
Maryland General	38	14	142	319	50	563
Sinai	73	79	86	956	87	1,281
Union Memorial	12	16	12	513	31	584
Chesapeake	29	88	4	815	21	957
Pediatric						
Kennedy Krieger	0	61	74	0	15	150
Mt. Washington	18	10	50	0	20	98

Notes: Primary payer is the anticipated source of payment for the major portion of the patient's hospital expenses. Other includes managed care payers (excluding Medicare and Medicaid managed care), self-pay, Workers' Compensation, Crippled Children's Services, other government programs, other, and unknown. For Kennedy Krieger, Blue Cross is included in commercial insurance.

Rehabilitation Discharges by Disposition of Patient: Maryland, 2003

Hospital	Disposition of Patient				
	Acute Care	Home	Nursing Facility	Other	Total
Adult					
Cumberland Memorial	8	299	21	8	336
Washington County	34	350	34	14	432
Adventist	131	987	101	25	1,244
Laurel Regional	38	475	108	12	633
Good Samaritan	155	891	158	164	1,368
Bayview	6	129	0	23	158
Johns Hopkins	34	388	6	48	476
Kernan	173	1,119	116	40	1,448
Levindale	30	134	29	27	220
Maryland General	99	346	109	10	564
Sinai	137	984	105	55	1,281
Union Memorial	36	527	7	14	584
Chesapeake	110	781	54	12	957
Pediatric					
Kennedy Krieger	0	145	1	4	150
Mt. Washington	13	83	0	2	98

Notes: Disposition of patient is defined as the disposition of the patient's stay in the hospital. Other includes sub-acute care, psychiatric unit, rehabilitation unit or facility, other health care facility, left against medical advice, died, and unknown, as well as invalid coding.

Seventy-six percent of discharges from adult programs were discharged to home (self-care or under the care of a home health services agency); 21 patients (0.2 percent) died during the hospitalization. Home was the disposition of 92 percent of discharges from pediatric programs; no patients died during the hospitalization.

Most of the facilities providing acute inpatient rehabilitation services in Maryland are part of multi-hospital health systems that include other types of post-acute inpatient services (chronic hospital or comprehensive care facility), designation by the Maryland Institute for Emergency Medical Services Systems (MIEMSS) as a trauma center, or both. Dispositions

coded as nursing facility may include patients discharged to sub-acute care. These inpatient components support a continuum of care within health systems.

The most frequent impairment groups among adults were Orthopedic Disorders and Stroke. Within the orthopedic group, 59 percent of the discharges received rehabilitation after hip or knee replacements. Brain injuries were more numerous than spinal cord injuries. Amputation of upper or lower extremity comprised 3.3 percent of discharges. Major Multiple Trauma, which also includes brain and spinal cord injury, and fractures of the spine or skull along with multiple fractures or amputation, comprised 2.1 percent.

The most frequent impairment groups among pediatric patients were Orthopedic Conditions and Brain Dysfunction.

To be in conformance with CARF standards, a program collects comparative data and provides information about its ability to achieve optimal outcomes for the persons it serves, including how the program compares with other regional and national programs. The program may also use the data to measure patient satisfaction and improve its performance. A hospital may include on its web site information regarding specific indicators of rehabilitation outcomes and the performance of each accredited program provided by the hospital.

Selected Licensure Classification and Trauma Center Designation by Hospital and Multi-Hospital Health System: Maryland, 2003

Hospital and *Health System*	Licensure Classification		Trauma Center Designation
	Special Hospital – Chronic	Comprehensive Care Facility	
Cumberland Memorial			●
Western Maryland Health System		●	
Adventist			
Adventist HealthCare		●	
Laurel Regional			
Dimensions Healthcare System	●	●	●
Good Samaritan		●	
Union Memorial			
*MedStar Health**		●	
Johns Hopkins Bayview	●	●	●
Johns Hopkins			●
Johns Hopkins Health System			
Kernan	●		
Maryland General			
Mt. Washington			
*University of Maryland Medical System***	●	●	●
Levindale	●	●	
Sinai			●
LifeBridge Health		●	

*Included are facilities located in Maryland. MIEMSS has designated the burn center at the Washington Hospital Center, located in Washington, D.C., as a specialty referral center within the Maryland Emergency Medical Services (EMS) System.
**The R Adams Cowley Shock Trauma Center, which serves as the state's Primary Adult Resource Center within the Maryland EMS System, is also designated as a specialty referral center for neurotrauma (head and spinal cord injuries).
Sources: Maryland Office of Health Care Quality and Maryland Institute for Emergency Medical Services Systems.
Notes: Other specialty referral centers include the Curtis National Hand Center (Hand/Upper Extremity Trauma) at Union Memorial Hospital, and the Baltimore Regional Burn Center at the Johns Hopkins Bayview Medical Center. Pediatric trauma centers are located at the Johns Hopkins Children's Center and at the Children's National Medical Center in Washington, D.C.
Washington County Hospital is designated as a trauma center. Kennedy Krieger is an affiliated institution of Johns Hopkins Medicine. HealthSouth Chesapeake is part of a national network of hospitals.

Discharges by Rehabilitation Impairment Group: Maryland, 2003

Hospital	Rehabilitation Impairment Group											
	Brain Dysfunction							Spinal Cord Dysfunction				
	Traumatic	Non-traumatic & Other	Cardiac	Debility	Medically Complex	Neurological	Orthopedic	Traumatic	Non-traumatic & Other	Stroke	Other	Total
Adult												
Cumberland Memorial	1	4	5	26	4	3	156	1	0	63	73	336
Washington County	12	7	19	15	49	15	113	9	0	80	113	432
Adventist	23	37	79	22	101	44	462	23	51	248	154	1,244
Laurel Regional	2	14	75	5	119	12	177	0	1	137	91	633
Good Samaritan	5	17	11	133	20	32	684	17	56	260	133	1,368
Bayview	0	0	2	1	9	6	109	0	0	13	18	158
Johns Hopkins	2	56	42	2	72	35	59	1	90	68	49	476
Kernan	85	37	20	87	67	44	566	18	50	286	188	1,448
Levindale	3	5	10	69	17	7	18	1	2	21	67	220
Maryland General	65	2	0	0	2	75	66	0	11	114	229	564
Sinai	46	99	86	106	77	35	562	0	7	171	92	1,281
Union Memorial	2	0	217	41	29	4	214	0	0	54	23	584
Chesapeake	9	11	56	37	63	19	414	3	23	155	167	957
Pediatric												
Kennedy Krieger	29	17	0	0	0	2	73	1	9	4	15	150
Mt. Washington	5	7	0	0	3	2	48	1	2	7	23	98

For Laurel Regional, the data source is a file created 6/14/2004, which contains fewer cases with invalid codes.
This item (Rehabilitation Impairment Group) has been taken from the Guide for the Uniform Data Set for Medical Rehabilitation (including the FIM instrument), Version 5.1, owned by the Uniform Data System for Medical Rehabilitation, a division of UB Foundation Activities, Inc. Used with permission.
Kennedy Krieger Institute and Mt. Washington Pediatric Hospital use the impairment group codes in the UDSMR WeeFIM System.
The Functional Independence Measure (FIM) provides a way to measure and monitor a person's progress during the rehabilitation stay, and determine functional outcomes at the time of discharge.
Notes: For adult, Other includes Amputation, Arthritis, Burns, Congenital Deformities, Developmental Disability, Major Multiple Trauma, Other Disabling Impairments, Pain Syndromes, Pulmonary Disorders, and invalid codes. Additionally, for pediatric, Other includes Cerebral Palsy and Chronic Health Conditions.